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REMARKS

Entry of the foregoing amendments to the application is requested on the grounds that the claims, as amended, patentably distinguish over the cited art of record or, alternatively, place the application in better condition for appeal. The claims more particularly point out and distinctly claim the subject matter which Applicants regard as the invention. No new issues have been added which would require further consideration and/or search, nor has any new matter been added. The claims as amended are believed to avoid the rejections applied in the Final Office Action for reasons set forth more fully below.

The Office Action of December 1, 2003 has been received and carefully reviewed. It is submitted that, by this Communication, all bases of rejection and objection are traversed and overcome. Upon entry of this Communication, Claims 1-13 and 15-18 remain in the application. Claims 14 and 19 have been cancelled without prejudice. Reconsideration of the claims as amended is requested.

In response to the Examiner's suggestion that the amount of silver compound be recited, Claims 1 and 18 have been amended to recite such amounts. Support for the recitation of the amounts may be found in the Applicants' specification as originally filed on page 9, lines 27-29, page 10, line 12, and page 16, line 14.

Applicants respectfully point out that in the Antos reference, silver is a minor component (0.01 – 5 wt.%) (Antos claim 2). Further, the Lampert reference discloses between 5 and 15 wt.% silver component (Lampert claim 8).

In sharp contrast, the Applicants' invention as defined in amended claim 1 recites that the silver compound to carrier ratio is at least 0.16:1 (i.e. 0.16 grams of silver compound per gram of carrier). Further, in Applicants' invention as defined in claim 18 the silver compound to carrier ratio ranges between about 0.16:1 and about 0.47:1.

For this reason, it is submitted that Applicants' invention as defined in claims 1 and 18 and any claims depending therefrom is not anticipated, taught, or rendered obvious by Antos or Lampert, either alone or in combination, and patentably defines over the art of record.

Claims 1-13 and 17 stand rejected under 35 U.S.C. 102(b) as being anticipated by Antos U.S. Patent No. 4,341,664.

Specifically referring to claims 1, 6 and 7 the Examiner points out that Antos discloses a composite comprising silver acetate, chlorate, perchlorate, fluoride, nitrate or the like

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on a support having a pore diameter of 20-300 Angstroms and a surface area of 100-500 square meters per gram for dehydrogenation of hydrocarbon compounds, which includes dehydrogenation of alkenes to alkynes. Referring to claims 2, 4, 8, 11 and 12, the Examiner states that Antos discloses silver chloride or nitrate and silica. The Examiner states that claims 3, 5, 9 and 10 are anticipated because Antos discloses zeolitic aluminosilicates. The Examiner goes on to state that claim 13 is anticipated because Antos discloses a pore diameter of 20-300 Angstroms. Still further, the Examiner states that claim 17 is anticipated because Antos' Example IV discloses propylene.

Claims 1, 6 and 7 have been revised to recite that the adsorbent contains the copper compound or salt and/or silver compound present in an amount effective to releasably retain the gaseous alkenes via π -complexation bonds. Further, it is recited that the gaseous mixture comprises the gaseous alkenes and at least one other compound. Still further, it is recited that the silver compound and/or copper compound/salt is adapted to preferentially releasably retain the alkenes. As such, Applicants respectfully submit that the adsorbent recited in amended claims 1, 6 and 7 is structurally different from the catalytic composite defined in Antos.

Support for the recitation of the π -complexation bonds between the gaseous alkenes and the copper compound/salt and/or silver compound may be found at page 2, lines 28-30 in the specification as filed. Further, support for the additional compounds in the mixture may be found in the specification as filed at page 2, lines 13-22 and lines 10-11.

Applicants respectfully submit that Antos discloses a nonacidic catalytic composite having "a combination of a catalytically effective amount of a pyrolyzed rhenium carbonyl component with a porous carrier material, a uniform dispersion of catalytically effective amounts of a silver component, an alkali or alkaline earth component and a platinum group component which is maintained in the elemental metallic state." Antos describes a composite that is catalytically effective to dehydrogenate hydrocarbons.

In sharp contrast, Applicants' invention as defined in amended claims 1, 6 and 7 recite adsorbents having copper and/or silver compounds and/or salts which are adapted to preferentially releasably retain gaseous alkenes from a gaseous mixture comprising the alkenes and at least one other compound via π -complexation bonds.

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Applicants respectfully submit that while Antos discloses similar materials, Antos neither teaches nor discloses copper compounds or salts and/or silver compounds present in an amount effective to releasably retain gaseous alkenes via π -complexation bonds as defined in Applicants' claims 1, 6 and 7. As such, it is submitted that Applicants' invention as defined in claims 1, 6 and 7 and the claims depending therefrom is not anticipated, taught or rendered obvious by Antos, either alone or in combination, and patentably defines over the art of record.

Claims 1-11 and 13-19 stand rejected under 35 U.S.C. 102(e) as being anticipated by Lampert et al. U.S. 6, 074,973.

Specifically referring to claims 1, 6 and 7, the Examiner states that Lampert discloses a hydrocarbon trap, which includes trapping alkenes, comprising a silver compound and a palladium compound on a support, wherein the silver compound is silver nitrate, the support has a 90-150 square meters per gram surface area, and comprises pores with a diameter of 4-8 Angstroms. Regarding claims 2, 4, 8, 11 and 12, the Examiner points out that Lampert discloses silver nitrate on silica. In the rejection of claims 3, 5, 9 and 10, the Examiner states that Lampert discloses ZSM-5. Furthermore, the Examiner states that claim 13 is anticipated because Lampert discloses pores with a diameter of 4-8 Angstroms. Regarding claims 14, 18 and 19, the Examiner asserts that Lampert discloses π -complexation bonds. Still further, the Examiner states that claim 17 is anticipated because Lampert discloses propene.

Applicants' invention as defined in amended claims 1, 6 and 7 recites a copper compound or salt and/or silver compound present in an amount effective to releasably retain the gaseous alkenes via π -complexation bonds. Further, it is recited that the gaseous mixture comprises the gaseous alkenes and at least one other compound and that the copper compound or salt and/or silver compound is adapted to preferentially releasably retain the alkenes. As such, Applicants respectfully submit that the adsorbent recited in amended claims 1, 6 and 7 is structurally different from the catalyzed hydrocarbon trap defined in Lampert.

The Examiner states that Lampert discloses π -complexation bonds. Actually, Lampert discloses that, "a feature of the Ag-zeolite hydrocarbon trapping system is its high temperature retention of hydrocarbon molecules containing π bonds."

It is submitted that this description is not the same as Applicants' invention as defined in claims 1, 6 and 7 reciting an adsorbent having compounds adapted to releasably retain gaseous alkenes via π -complexation bonds. Further, Applicants submit that Lampert's disclosure

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of π bonds does not teach or anticipate Applicants' invention as defined in amended claims 1, 6 and 7 because Lampert is teaching a trap for the retention of hydrocarbon molecules containing π bonds, while Applicants' claims recite an adsorbent containing copper compounds or salts and/or silver compounds present in an amount effective to releasably retain the gaseous alkenes via π -complexation bonds from a mixture containing both the alkenes and at least one other compound.

Regarding claim 15, Lampert's high temperature retention (adsorption) occurs at 75°C, while Applicants' invention as defined in amended claim 15 recites that alkenes are preferentially releasably retained at temperatures ranging between about 0°C and about 50°C. Further, any desorption described in Lampert occurs at a temperature ranging between about 100°C and about 500°C while Applicants' desorption occurs at a temperature ranging between about 70°C and about 200°C. Lampert teaches **retaining** the hydrocarbon at 75°C, while Applicants recite the release of the alkenes starting at 70°C. (See amended claim 15 and Applicants' specification at page 3, lines 24-27).

Following the teaching of Lampert, Applicants submit that one would not use the trap disclosed by Lampert to preferentially releasably retain gaseous alkenes from a gaseous mixture comprising both the alkenes and at least one other compound, for example the separation of alkenes from alkanes.

As such, it is submitted that Applicants' invention as defined in claims 1-13 and 17 as well as any claims depending therefrom, is not anticipated, taught or rendered obvious by Lampert, either alone or in combination, and patentably defines over the art of record.

In summary, claims 1-13 and 15-18 remain in the application. It is submitted that, through this amendment, Applicants' invention as set forth in these claims is now in a condition suitable for allowance. Should the Examiner believe otherwise, it is submitted that the claims as amended qualify for entry as placing the application in better form for appeal.


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Further and favorable consideration is requested. If the Examiner believes it would expedite prosecution of the above-identified application, he is cordially invited to contact Applicants' Attorney at the below-listed telephone number.

Respectfully submitted,

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